

IN THE SPECIFICATION

Please replace the paragraph beginning at page 1, line 20, through page 2, line 4, with the following rewritten paragraph:

Fig. 17 20 illustrates in block form the basic configuration of a conventional sound acquisition apparatus disclosed, for example, in Japanese Patent Application Kokai Publication 8-250944. The conventional sound acquisition apparatus is made up of a microphone 41, a power calculating part 42, an amplification factor setting part 43, and an amplifier 44. The power calculating part 42 calculates a long-time mean power P_{ave} of the signal received by the microphone 41. The long-time mean power can be obtained by squaring the signal and time-integrating the squared output. Next, the amplification factor setting part 43 sets an amplification factor G based on the long-time mean power P_{ave} of the received signal calculated by the power calculating part 42 and a preset desired sending level P_{opt} . The amplification factor G can be calculated, for example, by the following equation (1).

Please replace the paragraph beginning at page 9, line 24, through page 10, line 7, with the following rewritten paragraph:

Let M (M being an integer equal to or greater than 2) represent the number of microphones and τ_{ij} represent a measured value of the delay time difference between signals acquired by i -th and j -th microphones 11_i and 11_j . The measured value of the delay time difference between the acquired signals can be obtained by calculating the cross-correlation between the acquired signals and detecting its maximum peak position. Next, let the sound acquisition position of an m -th (where $m=1, \dots, M$) microphone be represented by (x_m, y_m, z_m) and an estimated sound source position by $(\hat{X}, \hat{Y}, \hat{Z})$. ~~A measured~~ An estimated value $\hat{\tau}_{ij}$

of the delay time difference between the acquired signals, which is available from these positions, is expressed by Eq. (2).

Please replace the equation at page 14, lines 8-9, with the following rewritten equation:

$$\mathbf{R}_{xx}(\omega) = \begin{pmatrix} X_1(\omega) \\ \vdots \\ X_M(\omega) \end{pmatrix} \begin{pmatrix} X_1(\omega)^* & \cdots & X_M(\omega)^* \end{pmatrix}$$

$$= \begin{pmatrix} X_1(\omega)X_1(\omega)^* & X_1(\omega)X_2(\omega)^* & \cdots & X_1(\omega)X_M(\omega)^* \\ X_2(\omega)X_1(\omega)^* & X_2(\omega)X_2(\omega)^* & \cdots & X_2(\omega)X_M(\omega)^* \\ \vdots & \vdots & \ddots & \vdots \\ X_M(\omega)X_1(\omega)^* & X_M(\omega)X_2(\omega)^* & \cdots & X_M(\omega)X_M(\omega)^* \end{pmatrix}$$

Please replace the paragraph beginning at page 15, line 25, through page 16, line 13, with the following rewritten paragraph:

For example, assuming that the microphone 11₁ is the closest to the sound source 9₁, the value of the weighting factor a_{k1} is so determined as to assign the maximum weight to the acquired signal by the microphone 11₁ (a first channel) and the values of weighting factors a_{k2} , a_{k3} , ..., a_{kM} for the acquired signals of the other channels are determined smaller than a_{k1} . With such weighting scheme, it is possible to increase S/N (Signal to Noise ratio) of the acquired signal from the sound source 9₁ or lessen the influence of room reverberation more than in the case where such weighting is not performed. That is, the optimum value of the weighting factor of the weighted mixing vector $\mathbf{A}_k(\omega)$ for each sound source 9_k is predetermined experimentally by the directivity and layout of microphones and the layout of sound sources in such a manner as to increase S/N of the output speech signal corresponding to the sound source 9_k, for example, and decrease the room reverberation. According to the

present invention, however, even when equal weighting is done in all the channels, acquired signals from the respective sound sources can be controlled to a desired level.

Please replace the equation at page 17 with the following rewritten equation:

$$(X_{Sk,1}(\omega), \dots, X_{Sk,M}(\omega)) \mathbf{H}(\omega) = \sqrt{\frac{P_{opt}}{P_{Sk}}} (X_{Sk,1}(\omega), \dots, X_{Sk,M}(\omega)) \mathbf{A}_k(\omega) \quad (15)$$

Please replace the paragraph beginning at page 23, line 25, through page 24, line 2, with the following rewritten paragraph:

The covariance matrix storage part 18 stores, based on the result of detection by the sound source position detecting part 15 and the result of decision by the state decision part ~~15~~ 14, the covariance matrices $\mathbf{R}_{SkSk}(\omega)$ in the utterance period and the covariance matrices $\mathbf{R}_{NN}(\omega)$ in the noise period for the sound sources $9_1, \dots, 9_K$ in areas $MA_1, \dots, MA_K, MA_{K+1}$.

Please replace the equation at page 27, line 8, with the following rewritten equation:

$$\mathbf{R} \mathbf{R}_{xx}(\omega) = \begin{pmatrix} Z(\omega) \\ X_1(\omega) \\ \vdots \\ X_M(\omega) \end{pmatrix} (Z(\omega)^* X_1(\omega)^* \dots X_M(\omega)^*) \quad (19)$$

Please replace the equation at page 27, line 23, with the following rewritten equation:

$$P_{Sk} = \frac{1}{W} \sum_{\omega=0}^W \mathbf{A}_k(\omega)^H \mathbf{R} \mathbf{R}_{SkSk}(\omega) \mathbf{A}_k(\omega) \quad (20)$$

Please replace the equation at page 29, lines 3-4, with the following rewritten equation:

$$(Z_E(\omega), X_{E,1}(\omega), \dots, X_{E,M}(\omega))\mathbf{H}(\omega) = 0 \quad (22)$$

$$(Z_N(\omega), X_{N,1}(\omega), \dots, X_{N,M}(\omega))\mathbf{H}(\omega) = 0 \quad (23)$$

Please replace the equation at page 29, line 10, with the following rewritten equation:

$$(Z_{Sk}(\omega), X_{Sk,1}(\omega), \dots, X_{Sk,M}(\omega))\mathbf{H}(\omega) = \sqrt{\frac{P_{opt}}{P_{Sk}}} (Z_{Sk}(\omega), X_{Sk,1}(\omega), \dots, X_{Sk,M}(\omega))\mathbf{A}_k(\omega)$$

Please replace the equation at page 32, line 1, with the following rewritten equation:

$$\mathbf{R}_{xx}(\omega) = \begin{pmatrix} Z(\omega) \\ X_1(\omega) \\ \vdots \\ X_M(\omega) \end{pmatrix} (Z(\omega)^* \cdot X_1(\omega)^* \cdot \dots \cdot X_M(\omega)^*) \quad (27)$$

Please replace the equation at page 33, lines 15-16, with the following rewritten equation:

$$(Z_E(\omega), X_{E,1}(\omega), \dots, X_{E,M}(\omega))\mathbf{H}(\omega) = 0 \quad (29)$$

$$(Z_N(\omega), X_{N,1}(\omega), \dots, X_{N,M}(\omega))\mathbf{H}(\omega) = 0 \quad (30)$$

Please replace the equation at page 33, lines 22-23, with the following rewritten equation:

$$(Z_S(\omega), X_{S,1}(\omega), \dots, X_{S,M}(\omega))\mathbf{H}(\omega) = (Z_S(\omega), X_{S,1}(\omega), \dots, X_{S,M}(\omega))\mathbf{A}(\omega) \quad (31)$$